

Advanced Computational Fluid Dynamics (CFD) Project

Game Changing Development Program | Space Technology Mission

Directorate (STMD)



ANTICIPATED BENEFITS

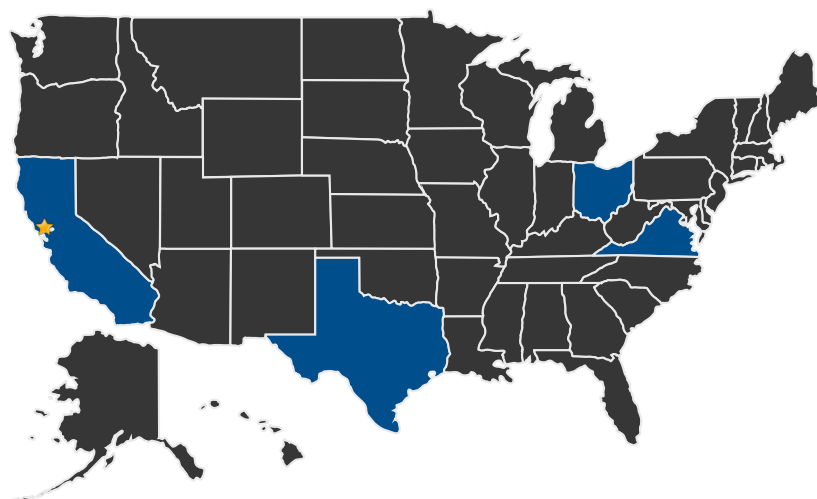
To NASA funded missions:

Deliver improved DSMC modeling capability for use on ISS station keeping. Deliver predictive capability for parachute descent dynamics with direct benefit to Orion/CPAS.

DETAILED DESCRIPTION

It is time for the next generation of aerothermodynamic CFD software, including unstructured gridding, low dissipation fluxes, dynamic simulations, and modern software engineering techniques.

U.S. WORK LOCATIONS AND KEY PARTNERS



■ U.S. States
With Work

★ Lead Center:
Ames Research Center

Other Organizations Performing Work:

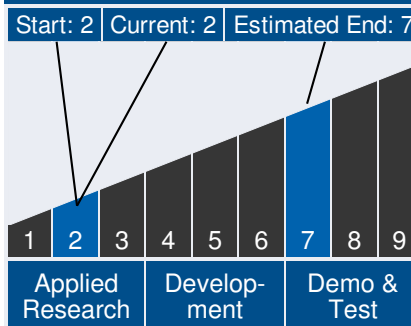
- University of Minnesota (Minneapolis, MN)



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Technology Maturity



Management Team

Program Executive:

- Lanetra Tate

Program Manager:

- Mary Wusk

Project Manager:

- Michael Wright

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Technology Areas

Primary Technology Area:

Entry, Descent, and Landing
Systems (TA 9)

- └ Vehicle Systems (TA 9.4)
 - └ Modeling and
Simulation (TA 9.4.5)

Secondary Technology Area:

Thermal Management
Systems (TA 14)

- └ Thermal Protection
Systems (TA 14.3)
 - └ Ascent/Entry TPS (TA
14.3.1)

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Technology Areas (cont.)

Additional Technology Areas:

Entry, Descent, and Landing
Systems (TA 9)

- └ Descent and Targeting (TA 9.2)

- └ Trailing Deployable
Decelerators (TA 9.2.2)

- └ Supersonic
Parachutes (TA
9.2.2.1)

- └ Supersonic
Retropropulsion (TA 9.2.3)

- └ Advanced Algorithms
and Sensors for
Supersonic
Retropropulsion
(SRP) (TA 9.2.3.1)

- └ Vehicle Systems (TA 9.4)

- └ Modeling and
Simulation (TA 9.4.5)

- └ Multi-Disciplinary
Coupled Analysis
Tools (TA 9.4.5.1)

- └ Aerothermodynamics
Modeling (TA 9.4.5.2)

- └ Numerical
Methodologies and
Techniques (TA
9.4.5.6)

- └ Fluid Structure
Interaction (FSI)
Tools (TA 9.4.5.10)

- └ Supersonic
Retropropulsion (SRP)
Modeling Tools (TA
9.4.5.11)

- └ Aerodynamic Modeling
Tools (TA 9.4.5.12)

Active Project (2012 - 2018)

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DETAILS FOR TECHNOLOGY 1
